

# Collider-Accelerator Department

## FY 2000 Self-Assessment Report

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11/15/2000  
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## **I. Collider-Accelerator Department (C-AD) Mission**

In support of Brookhaven National Laboratory's broad mission of providing excellent science and advanced technology in a safe, environmentally responsible manner the Collider Accelerator Department is committed to the following:

- ❖ Excellence in environmental responsibility and safety in all C-A department operations.
- ❖ Develop, improve and operate the suite of proton/heavy ion accelerators used to carry out the program of accelerator-based experiments at BNL.
- ❖ Support the experimental program including design, construction and operation of the beam transports to the experiments and partial support of detector and research needs of the experiments.
- ❖ Design and construct new accelerator facilities in support of the BNL and National Missions.

## **II. Self-Assessment Program**

The objective of the C-AD self-assessment program is to provide a systematic approach to performance management. That is, to provide C-A management with information needed to ensure organizational performance objectives are being met and appropriate improvement actions are identified and implemented.

The C-A Department has adopted a self-assessment framework primarily based on the Malcolm Baldrige National Quality Award Criteria. Which are as follows:

- Leadership Commitment and Involvement
- Human Resource Development and Management
- Customer Focus and Satisfaction (Customer Value)
- Process Management
- Business and Operational Results
- Compliance with Laws Regulations and Contractual Requirements

### **1.0 Evaluation of Objectives and Measures**

For each of the assessment criteria stated above, C-AD has established objectives, strategies, performance measures and indicators where appropriate. Refer to matrix within this document. A brief summary of C-A performance items, which was not captured in the matrix, is listed below.

#### **a. Occurrence reports and Nonconformance reports**

Reportable occurrences continue to trend downward showing a factor of four decline every 10 years. FY2000 occurrences relate to legacy issues detected by BNL's expanded groundwater-monitoring program.

Six Nonconformance Reports (NCRs) were issued in FY00. Four were the result of the internal EMS Assessment and two addressed unmarked cabinets containing controlled materials. Corrective actions were approved and implemented.

## b. Environmental Issues

Improvements at C-A facilities include new rainwater barriers and a new design standard to prevent rainwater infiltration at activated soil locations. The C-A Department continued its pollution prevention initiatives and reduced radioactive waste, tritium, uranium and lead inventories. Water consumption and the use of chemicals for cooling water treatment were also significantly reduced.

## c. Assessments

The C-A Department conducted the annual Department Self-Assessment, annual EMS Assessment, annual Environmental Management Review, 24 worker and supervisor self-assessments, 17 QA assessments, 104 Tier 1 inspections, 52 90-Day Area inspections and 144 inspections of satellite-waste stations. C-A has closed out the majority of observations that resulted from these internal audits; for example, over 90% of the corrective actions from the C-A environmental process evaluations have been implemented.

The overall conclusions of these audits were: well written program descriptions, excellent operational procedures, well written and descriptive plans and forms, an excellent commitment by staff and users to the laboratory's policies and an excellent system for control of operations. External audits came to similar conclusions. For example, the ESHQ Directorate conferred an "Outstanding" rating regarding the critical outcome measure for work planning and control, ESH Standards 1.3.5 and 1.3.6. The Collider-Accelerator Department passed its Integrated Safety Management examination by DOE without any findings, and the Department successfully implemented an environmental management program and has achieved ISO 14001 registration.

## 2.0 **FY01 Improvement Planning**

The following summarizes the planned improvement activities to be implemented during FY 2001

- The Self-Evaluation Program has been re-assigned within the ESHQ Division and is moving forward at the expected rate. As an enhancement to the program, C-A has adapted the "family" version of the BNL Assessment Tracking System (ATS) to track to closure all action items assigned during Self-Evaluations.
- Recommend one additional C-A employee participates in BNL Envoy Program.
- An annual review of the C-A Process Evaluations will be performed by the ECR. C-A QA will perform an annual Process Evaluation assessment to ensure ECR has performed required reviews. This task will be tracked in the C-A ATS.
- C-A EMS Manager will develop and document a process that will ensure that the review and revision to any one of the C-A EMS documents considers the impact on the other three related documents, i.e., process evaluations, Operational Control Forms, Environmental Management Programs and Environmental Training Packages. .

- C-A EMS Manager will establish a revision control program for C-A EMS documentation.
- Revise C-A OPM 2.28, C-A Procedure For Enhanced Work Planning and C-A-OPM 2.29, C-A Procedure For Enhanced Work Planning For Experimenters, to identify the ECR and Waste Management Representative as subject area experts. Revision to OPM will be tracked in the 'family' version of the Assessment Tracking System.
- Continue to employ the BNL Quality Program and Services Office to provide assistance in performing scheduled C-A assessments.

### **3.0 Institutional Improvement Planning**

Based on Off-Normal Occurrence CH-BH-BNL-AGS-2000-0004, the following institutional improvements have been identified and are tracked in the BNL ATS:

- Plant Engineering shall conduct an evaluation of their site-wide electrical distribution system maintenance program. The evaluation shall check for robust coverage and timely completion of prescribed maintenance.
- The BNL Fire Protection Engineer shall resubmit the Activity Data Sheet (ADS), identifying the need to upgrade approximately 60 fire alarm panels reported to be on-site with similar age and similar single-point failure design-deficiency, to the ES&H Prioritization Team for reevaluation and subsequent binning by the Consolidation Team.
- The Plant Engineering Division Manager shall charge a Fire Protection Planning Team that has site-wide representation to analyze fire-alarm system upgrades for the site and resolve on-going issues, including specific issues identified in this occurrence report and the BNL critique for this event.
- The BNL Fire Protection Engineer shall use email and other low-level awareness systems to remind BNL staff to check areas near electrical distribution equipment for any nearby materials and to remove these materials to safer locations. Staff should be reminded that boundary locations should be clearly defined, be made aware of requirements for clear zones in front of electrical distribution equipment and be told why these areas must be kept free of materials.

<b>ASSESSMENT CRITERIA 1: Leadership Commitment and Involvement</b>			
<b>OBJECTIVE:</b> 1 Excellence in environmental responsibility and safety in all Department operations.			
<b>STRATEGY:</b> 1 ES&H <ul style="list-style-type: none"> <li>a) Conduct an EMS management review in accordance with the “Environmental Assessments” Subject Area to ensure the continuing suitability, adequacy and effectiveness of the EMS.</li> <li>b) Senior managers shall participate in facility ESHQ Walk throughs.</li> </ul>			
Measures	Indicators	Responsibility	Schedule/Due Date
Management Review Completed in accordance with the “Environmental Assessments” Subject Area. Management review completed and “Record of Decision” issued		EMS Representative	July 2000
<b>Results:</b> C-A Department Environmental Management System (EMS) <a href="http://www.rhichome.bnl.gov/AGS/Accel/SND/environmental_management_review.htm">Management Review</a> was convened on June 29, 2000, ( <a href="http://www.rhichome.bnl.gov/AGS/Accel/SND/environmental_management_review.htm">http://www.rhichome.bnl.gov/AGS/Accel/SND/environmental_management_review.htm</a> ). Environmental Management Review <a href="http://www.rhichome.bnl.gov/AGS/Accel/SND/EMS/EMSManagementReview/ROD.pdf">Record of Decision</a> issued on July 11, 2000 ( <a href="http://www.rhichome.bnl.gov/AGS/Accel/SND/EMS/EMSManagementReview/ROD.pdf">http://www.rhichome.bnl.gov/AGS/Accel/SND/EMS/EMSManagementReview/ROD.pdf</a> )			
<b>Action Items:</b> None.			
Senior Management ESHQ Walk throughs as described in the Excellence Indicators for FY ES&H Off-Ramp. FY00 ES&H Off-Ramp measure requires 12/year/senior manager (average) and not less than 6 per manager.	Number of Senior management walkthroughs performed per quarter	C-A Department Chairman	Quarterly
<b>Results:</b> Department Chair has performed 55 walkthroughs during FY 2000. In addition, the C-A Department Chair has created a culture which encourages senior management to be involved in the various operations and experimental activities within C-A, e.g. assessment of experimental status, Experimental Safety Review Committee (ESRC) and Accelerator Safety System Review Committee (ASSRC)			
<b>Action Items:</b> None.			

**ASSESSMENT CRITERIA 2: Human Resource Development and Management**

**OBJECTIVE:**

- 1 Create a pool of talented, empowered, motivated, and goal oriented leaders/managers/workers to support and enhance the C-A competitive position within the DOE laboratory complex.
- 2 Provide a high quality work environment that enhances C-A's ability retain and attract an excellent workforce.

**STRATEGY:**

- 1 Planning for staff development is accomplished via the C-A long-range staffing plan.
- 2 Training is promoted via the C-A Training Plan as described in OPM 1.12, Conduct of Training Policy (Training Plan).
- 3 The C-A ESHQ training web page is listed at <http://www.rhichome.bnl.gov/AGS/Accel/SND/training.htm>. The overall training strategy is found in two documents:
  - a) [Training Plan Agreement](http://www.rhichome.bnl.gov/AGS/Accel/SND/Training/trainplan.pdf) (<http://www.rhichome.bnl.gov/AGS/Accel/SND/Training/trainplan.pdf>)
  - b) [Training Plan](http://www.rhichome.bnl.gov/AGS/Accel/SND/OPM/Ch01/01-12.PDF) (<http://www.rhichome.bnl.gov/AGS/Accel/SND/OPM/Ch01/01-12.PDF>)
4. Special environmental training was introduced in FY 2000 with an emphasis on reducing the potential for tritium emissions. Process specific training may be found at: [Training-Process Specific](http://www.esh.bnl.gov/esd/Internal/ags/C-A.htm) (<http://www.esh.bnl.gov/esd/Internal/ags/C-A.htm>)
5. C-A promotes education of its staff through the laboratory reimbursement program for continued college-level education. In addition, C-A encourages and supports its staff to attend technical industrial courses as well as various accelerator and high energy and nuclear physics conferences.
6. Via C-A OPM 9.4.2, Self Assessments, a self-critical attitude is fostered throughout the department from workers to senior management, this provides the basis for correcting weaknesses as well as promoting best practices. A self-assessment database for action required/completed is maintained by the C-A ES&H/Q Division.
7. Maintaining quality of work life (employee satisfaction and well being) is done by:
  - a. training and educating employees, empowering employees, for example with stop work authority (C-A-OPM 2.28.d, C-A Work Screening Guide),
  - b. compensating and recognizing employees for their work via the annual performance appraisal system and the BNL Employee Awards Program,
  - c. offering flexibility in work organization and work scheduling on either a case by case basis or for an entire work group,
  - d. recruiting and selecting motivated employees, and
  - e. providing an exceptional BNL benefits package
8. Perform periodic assessments to determine adequacy and effectiveness of listed strategies to achieve objective.

Measures	Indicators	Responsibility	Schedule/Due Date
Critical Outcome 5: Leadership 5.2.1 – Strengthen performance appraisal and goal planning process. Establish goals for all C-A level 2 and 3 managers.	% of Level 2 and 3 managers with established goals.	Associate Chair for Operations	June 2000

**Results:**

Performance goals for fiscal year 2001 have been documented for all C-A level 2 and 3 managers.

**Action Items:**

None.

Evaluate adequacy and effectiveness of strategy number four. Via C-A OPM 9.4.2, Self-Assessments, a self-critical attitude is fostered throughout the department from workers to senior management, this provides the basis for correcting weaknesses as well as promoting best practices. The C-A ES&H/Q Division maintain a self-assessment database for action required/completed.		Associate Chair for ESHQ	September 2000
<p><u>Results:</u></p> <ul style="list-style-type: none"> <li>• In order to avoid confusion with the Laboratory Self-Assessment Program, the C-A Self-Assessment Program has been renamed the C-A Self-Evaluation Program.</li> <li>• In fiscal year 2000, twenty-eight (28) assessments were scheduled, twenty-four (24) were issued to the responsible individuals and seven (7) were completed.</li> <li>• The performance of the C-A Self Evaluation Program was attributed to a management change within the C-A ESHQ Division, and a focus on changes in C-A Department ESHQ FY00 objectives, which were to achieve excellence in the ISM audit that was brought forward in time and to achieve ISO 14001 registration for the newly created C-A Department.</li> </ul> <p><u>Action Items:</u></p> <ul style="list-style-type: none"> <li>• The Self-Evaluation Program has been re-assigned within the ESHQ Division and is moving forward at the expected rate.</li> <li>• As an enhancement to the program, C-A has adapted the "family" version of the BNL Assessment Tracking System (ATS) to track to closure all action items assigned during Self Evaluations.</li> </ul>			

**ASSESSMENT CRITERIA 3: Customer Focus and Satisfaction (Customer Value)**

**OBJECTIVE:** Operate the C-A facility in a manner that is responsive to C-A internal and external customer expectations.

**STRATEGY:**

1. Understanding of customer and market needs is accomplished via discussions, formal proposals and formal agreements between experimenters (users) and C-A staff.
2. Stakeholders inquiries related to the operation of the C-A are recorded in the BNL Correspondence and Commitment Tracking System maintained by the Collider-Accelerator Department
3. Support BNL's initiative to regarding the BNL Communication and Trust critical outcome.
4. Customer and stakeholder expectations are identified in Memoranda of Agreement/Understanding between C-A Operations and the facility users. Integrating user and performance expectations into the C-A management systems is accomplished by setting operational goals, which are documented in OPM 2.1, C-A Operations Organization & Administration .
5. The AGS/RHIC Users Committee is a committee that represents the user community in various matters, such as programmatic satisfaction and dissatisfaction, quality of life matters, etc. They communicate both verbally and in writing to the directorate as well as line managers.
6. C-A appoints a liaison-physicist and engineer to each experiment. These individuals communicate with the Experimental Spokesperson, who is chosen from among the users. During construction of experiments, users meet with liaison engineers on a weekly (sometimes daily) basis, to layout experimental apparatus. This interaction allows users to have input at the design stage and leads to optimum layout for efficient running of experimental apparatus.
7. During operations, the weekly Time Meetings allow experimenters to discuss status, identify scheduling priorities, identify user requirements for the up coming week, voice complaints and at the same time, provide easy immediate access to all the C-A resources and staff.
8. Perform periodic assessments to determine adequacy and effectiveness of listed strategies to achieve objective.

Measures	Indicators	Responsibility	Schedule/Due Date
Determine C-A customer expectations and satisfaction level. C-A shall perform self-assessments to determine customer expectations and satisfaction level.		Department Chairman	September 2000

**Results:**

The four RHIC experimental detectors, BRAHMS, PHENIX, PHOBOS and STAR were all operational and taking data in FY 00. The first physics publication was submitted, and accepted, for publication approximately 5 weeks after the first detector collisions. On October 4 through 7, 2000, the 2000 Fall Meeting of the Division of Nuclear Physics met in Williamsburg, Virginia. Approximately 90 papers were presented on RHIC.

FY 1999 was scheduled to be the last operating year for the HEP slow extracted beam program. Due to both the quality of new experimental proposals and the cost effectiveness of AGS operations for FY 2000 and beyond, the DOE HEP and NP, and the National Science Foundation have provided positive guidance for future AGS proton operations.

C-A Department training staff has fully integrated with the new RHIC/AGS Users Center. C-A staff led the development of a new Lab-wide Guest Guide. Both these activities enhance the Users experience at C-A facilities, improve training efficiency and improve ESHQ performance.

**Action Items:**

None

Assess performance of C-A Correspondence and Commitment Tracking System (CCTS) per the requirements of the Correspondence and Commitment Tracking System subject area. This includes maintaining a directory of received correspondence and disseminating information to C-A Chairman with required actions highlighted.		Sr. Administrative Assistant	September 2000 (Based on results of assessment, frequency is 3 years)
<u>Results:</u> The Senior Administrative Assistant maintains an email folder for all C-A Correspondence and Commitment Tracking System (CCTS) correspondence from the BNL Directors Office. Correspondences are emailed to both the C-A Department Chair and the Sr. Administrative Assistant. The Department Chair either address the CCTS issue personally or forwards a hard copy to the appropriate C-A personnel. When necessary, once in FY 00, the Director Office has followed up on CCTS issues assigned to the C-A Department. As of November 2, 2000, there are no past due CCTS actions.  <u>Action Items:</u> None.			
Critical Outcome 2: Communication and Trust. Maintain C-A representation in the BNL Envoy program. Determine if current number of C-A employees participating in the Envoy Program is sufficient.	.	Department Chairman	September 2000 (Based on results of assessment, frequency is 3 years)
<u>Results:</u> Two C-A employees are part of the Envoy program and two others participate in the BNL Speakers Bureau. In addition, Betty Elder, of the C-A Administrative Group, is an active member of the Long Island Network for Community Telecomputing (LINCT) Program, which is held at BNL. LINCT is an entry-level computer-training program, which provides a learning opportunity to poverty level community residents to learn about technology. .  <u>Action Items:</u> Recommend one additional C-A employee participates in BNL Envoy Program.			
Verify effectiveness of AGS/RHIC Users Committee as a vehicle for identifying customer expectations and satisfaction.		Experimental Support & Facilities Division Head	September 2000
<u>Results:</u> The purpose of the AGS/RHIC Users Committee is to provide an organized channel for the interchange of information between the Laboratory administration and those who utilize BNL high energy and heavy-ion facilities for their research. Representing a wide spectrum of research workers, the AGS/RHIC Users Committee makes known to the BNL administration the needs and desires of those actively engaged in leading research projects and provides a means for BNL to inform them with respect to current and future plans for the Laboratory. It is expected that, from a thorough discussion of current and future projects and facilities, the Laboratory administration will be in a better position to evaluate the needs of the majority of its users and that the users, being better informed, can more efficiently plan the utilization of existing facilities.  <u>Action Items:</u> None.			

#### ASSESSMENT CRITERIA 4: Process Management

##### OBJECTIVE:

Establish, maintain and improve C-A processes/procedures for implementing Laboratory and organizational expectations.

##### STRATEGY:

- 1 Implement the requirements of ESH Standard 1.3.5. C-A OPM 9.2.1, Procedure For Reviewing Environmental, Health and Safety Aspects Of An Experiment ensures C-A complies with BNL requirements for the planning and control of experiments as defined in ESH Standard 1.3.5
- 2 Implement work planning and controls requirements per ESH Standard 1.3.6. C-A OPM 2.28, C-A Procedure For Enhanced Work Planning (which includes Stop Work policy) ensures C-A complies with BNL requirements for work planning and control systems as defined in ESH Standard 1.3.6. Assessment of the implementation of the C-A work planning process is performed as part of the C-A Tier I Inspections. All EWP systems within C-A shall be reviewed at a frequency specified by the C-A Work Control Manager.
- 3 Implementation of the BNL ES&H programs, including the EMS, and Conduct of Operations is verified via scheduled inspections, audits and C-A management, independent and self-assessments. These programs are documented in OPM Chapter 9 procedures (e.g. Tier I and Self-Assessments), QAP-1001, Independent Assessments and applicable subject areas. Reports are documented and include a description of the findings, corrective action(s), and identification of responsible individual(s).
- 4 Non-conformances: All environmental non-conformances with appropriate corrective action(s) shall be documented/processed per the requirements of the Nonconformance & Corrective and Preventive Action subject area. A database of environmental Non-Conformances Reports (NCR) shall be maintained by C-A Quality group until such time that the BNL Action Tracking System is available.
  - a) Non-conformances that will not have an impact on the environment are documented via C-A approved systems. These include inspection/test results (documented on the BNL Inspection/Test Form), Tier I inspection and C-A internal assessment results. Tier I and internal assessment results are documented and distributed in memorandum format. The ESHQ Division tracks corrective actions.
- 5 C-A has implemented a closed loop trouble-reporting program (OPM 2.9, Trouble Reports) that provides the guidelines for the issuance, routing, corrective action and closure of C-A failure data. A Trouble Report is initiated when any of the following criteria is reached: Non-Scheduled accelerator downtime of one (1) hour or more, or for cumulative downtime of one (1) hour in a given week for a particular system. In addition, all failures that significantly degrade the accelerator performance (e.g. 20% degradation of beam intensity for > 4 hours), or keep an experiment or user off for > 2 hours shall be cause to initiate this procedure.
- 6 Periodically assess C-A performance for implementation of Laboratory SBMS and internal process. The scope and frequency of assessment areas is based on
  - Importance, status, risk, and complexity of the activity, item or process;
  - Problems encountered with the activity, or item;
  - Scheduling of specific activities;
  - Availability of qualified personnel;
  - A review of findings reported in previous assessments.

This objective supports those assessments performed in compliance objective.

Measures	Indicators	Responsibility	Schedule/Due Date
Meet critical goals and milestones in the EPA Phase 2 Process Evaluation Project. Perform an assessment of the Environmental Management System performed in accordance with the "Environmental Assessments" Subject Area and C-A QAP 1001, Independent Assessments. The EMS assessment shall be performed by April 2000 with corrective and preventive action implemented by June 2000.		EMS Representative	April and June of 2000

<p><u>Results:</u> The C-A internal EMS Assessment was performed on May 17 and 18 of 2000. Four findings (significant deviation from documented requirements) and four observations (program/process weakness) were identified during the assessment. The C-A QA assessment database was used to track to closure the findings and observations noted during the assessment.</p> <p><u>Action Items:</u> None</p>			
Integrated Safety Management (FY00 only as part of ISM implementation) per the requirements of the ISM Implementation Plan		Associate Chair for ESHQ	February 2000
<p><u>Results:</u> The Collider-Accelerator Department passed its Integrated Safety Management examination by DOE without any findings, and the Department successfully implemented an environmental management program and has achieved ISO 14001 certification.</p> <p><u>Action Items:</u> None.</p>			
Critical Outcome 3: ES&H Excellence: Coordinate with ECR, completion of Phase 2 Process Evaluations			
<p><u>Results:</u> Process evaluations were completed and approved before the C-A EMS self-assessment.</p> <p><u>Action Items:</u></p> <ol style="list-style-type: none"> <li>1. An annual review of the C-A Process Evaluations will be performed by the ECR. C-A QA will perform an annual Process Evaluation assessment to ensure ECR has performed required reviews. This task will be tracked in the C-A ATS.</li> <li>2. C-A EMS Manager will develop and document a process that will ensure that the review and revision to any one of the C-A EMS documents, e.g. Process Evaluations, Operational Control Forms, Environmental Management Programs and Environmental Training Packages, considers the impact on the other three related documents.</li> <li>3. C-A EMS Manager will establish a revision control program for C-A EMS documentation.</li> </ol>			
3.1.2.1 Demonstrate involvement of ECR in the planning and control of experiments per the requirements ES&H 1.3.5.		Associate Chair for ESHQ	July 2000
<p><u>Results:</u> C-A-OPM 9.2.1, Procedure for Reviewing Environmental, Health and Safety Aspects Of An Experiment, requires ECR to participate in the planning and control of C-A experiments. The involvement of the ECR in C-A experimental review process is demonstrated via the completion of the EPA Phase II: Process Evaluation Project (PEP) Environmental Review of Experiments forms.</p> <p><u>Action Items:</u></p> <ul style="list-style-type: none"> <li>• C-A-OPM 2.29, C-A Procedure for Enhanced Work Planning for Experimenters, will identify the ECR and Waste Management Representative as subject area experts. C-A OPM 2.29 will be revised by March 31, 2001.</li> <li>• Revision to OPM will be tracked in the 'family' version of the Assessment Tracking System.</li> </ul>			

3.1.2.1 Demonstrate involvement of ECR in the planning and control of work per the requirements ES&H 1.3.6.		Associate Chair for ESHQ	
<u>Results:</u> Current C-A Enhanced Work Planning process requires the ES&H/Q Division Head or designee to review all EWP that are classified as moderate or high hazard jobs. This review includes job related environmental concerns. The ECR has signed off on environmental reviews of moderate or high hazard jobs where applicable. C-A-OPM 2.28, C-A Procedure For Enhanced Work Planning,			
<u>Action Items:</u> <ul style="list-style-type: none"> <li>C-A OPM 2.28, C-A Procedure for Enhanced Work Planning, will identify the ECR and Waste Management Representative as subject area experts who are involved in the work planning process. C-A OPM 2.28 will be revised by January 31, 2001.</li> <li>Revision to OPM will be tracked in the 'family' version of the Assessment Tracking System.</li> </ul>			
Critical Outcome 6: Infrastructure 6.1 Space Consolidation 1999 Percent Occupancy = 96.9% Goal for 2000 = 100%		Department Chairman	December 2000
<u>Results:</u> Metric is the percentage change in office occupancy for BNL's large permanent facilities, where the $OCC = OCC_{00} - OCC_{99}$ , and the $OCC_{xx} = \frac{\text{actual number of office occupants} \times 100}{\text{design office occupancy}}$ $OCC_{99} = \frac{185 \times 100}{191} = 96.9\%$ $OCC_{00} = \frac{245 \times 100}{191} = 128.3\%$ therefore the OCC for FY00 is $= 128.3\% - 96.9\%$ $= 31.4\% \text{ (} > 4.0\% \text{ is outstanding)}$			
<u>Action Items:</u> None.			
Assess implementation of corrective action management processes.		Associate Chair for ESHQ	June 2000

Results:

As of October 2, 2000, the C-A has adopted the family feature of the BNL Assessment Tracking System (ATS). This version of the ATS is not open to the entire BNL community, it is visible to C-A personnel only. The ATS will facilitate the tracking of action items from the various C-A committees and programs listed below. In addition, the ESHQ Division is offering the ATS service to C-A Group Leaders who could benefit from an automated tracking system.

Committee/Program

As Low As Reasonably Achievable (ALARA)	Operational Readiness Review (ORR)
Accelerator Readiness Review (ARR)	Radiation Safety Committee
Accelerator Safety System Review Committee (ASSRC)	Radiation Work Permits (RWP) Feedback Issues
Enhanced Work Permits (EWP) Feedback Issues	Self Assessment
Environmental Management Program (EMP)	Self Evaluation
Experimental Safety Review Committee (ESRC)	Tandem Advisory Committee
Independent Assessments	

An action item(s), e.g. specific task or investigation, is assigned to an 'owner' (person responsible for the assigned action item). The responsibility of the 'owner' is to complete the assigned action item(s) by the assigned due date. Notification of action item completion, request for clarification or due date extension is via email to the C-A ATS Administrators, A. Piper for Self-Evaluation and Tier I, D. Passarello for all others.

Action Items:

None.

<b>ASSESSMENT CRITERIA 5: Business and Operational Results</b>			
<b>OBJECTIVE:</b> 1 Design and construct new accelerator facilities in support of the BNL and national missions. 2 Operational <ul style="list-style-type: none"> <li>a) Operate and improve the suite of proton/heavy ion accelerators and beam transports used to carry out the program of accelerator-based experiments at BNL thus supporting the research mission of the laboratory's user population.</li> <li>b) Support the experimental program including design, construction, and operation of the beam transports to the experiments plus partial support of detector and research needs of the experiments</li> </ul>			
<b>STRATEGY:</b> 1 Report construction and operational progress/status to senior management at a frequency established by department/project management. 2 Operational: <ul style="list-style-type: none"> <li>a) The C-A mission is defined in Field Work Proposals (FWP), Conceptual Design Reports and Project Management Plans.</li> <li>b) Changes and upgrades to the accelerators are described in the Accelerator Improvement Projects.</li> <li>c) ES&amp;H improvements are captured in Safety and Health Activity Data Sheets and in the EPA Phase II Process Evaluations.</li> </ul>			
Measures	Indicators	Responsibility	Schedule/Due Date
Critical Outcome 1: Basic Science & Technology 1.3 Success in Constructing and Operating Research Facilities <ul style="list-style-type: none"> <li>1. Reference C-A Operations Schedule, Collider Acceptance Plan, accelerator performance meets the operational goals as specified in the FY 2000 Field Work Proposal. e.g. Beam collisions will be established during April and physics operation can then start at the beginning of May 2000.</li> <li>2. Meet critical milestones of the Spallation Neutron Source (SNS) as defined in SNS Project Plan.</li> </ul>		a. Department Chairman b. SNS Project Manager	Per plans
<b>Results:</b> C-A - The Relativistic heavy Ion Collider heavy ion physics operations begun on June 12, 2000. The first year integrated luminosity goal $1 \mu\text{b}^{-1}$ per experiment, was surpassed, and the luminosity goal of 10% design, $10^{25} \text{ cm}^{-2} \text{ sec}^{-1}$ , was surpassed. Storage times up to 12 hours and refill time of 45 minutes between stores were achieved. The operating efficiency for the accelerator complex exceeded 50%. This is superior to existing hadron colliders at this early time in their operation. The Relativistic Heavy Ion Collider began the commissioning of polarized proton operations. A new high current polarized proton ion source was made operational. The first Siberian snake and polarimeters were made operational in one ring. Polarized protons were injected and accelerated in one RHIC ring.  SNS - The Spallation Neutron Source (SNS) Project has delivered on all its task orders within time and below budget. During this period, there has been continuing technical changes concerning the LANL/JLAB Linac design. The BNL design work has withstood an onslaught of changing technical requirements by ORNL management. Technical reviewers, senior DOE management and senior SNS management continues to acknowledge the quality and quantity of work by the BNL team. All critical milestones have been met. Long-lead procurements of up to \$3.2M have been placed. Staffing is up ~90 FTE's as planned. Preparations are under way to fully obligate the ~\$20 M in FY 2000 funding. In summary, the milestones identified in the work packages that cover FY 2000 work have been fulfilled.  <b>Action Items:</b> None.			

<b>ASSESSMENT CRITERIA 6:</b> Compliance with Laws Regulations and Contractual Requirements			
<b>OBJECTIVE:</b> 1 Maintain compliance with applicable BNL regulations and contractual expectations. 2 Support Laboratory critical outcome off-ramp ES&H performance expectations.			
<b>STRATEGY</b> 1 Compliance requirements are communicated to C-A staff through participation on Laboratory committees, Laboratory Work Groups and through the SBMS. Senior C-A Electrical Engineers and senior C-A staff participate on the Laboratory Electrical Planning Committee, Laboratory Environmental, Health and Safety Committee, Radiation Protection Working Group, Environmental Management System Implementation Group, and Laboratory Electrical Safety Committee, all of which meet regularly. 2 In accordance with the BNL EMS, a regulatory compliance assessment, environmental management review, and EMS assessment shall be performed annually. a) Ensuring compliance to applicable requirements is addressed via scheduled inspections, audits and C-A management, independent and self-assessments. These programs are documented in the C-A OPM, C-A Quality Assurance Manual, Independent Assessments and applicable subject areas. Reports are documented and include a description of the findings, corrective action(s), and identification of responsible individual(s). A general index of C-A ESHQ programs can be found at <a href="http://server.rhichome.bnl.gov/SND/indexoftopics.htm">http://server.rhichome.bnl.gov/SND/indexoftopics.htm</a> . 3 Perform periodic assessments to determine adequacy and effectiveness of listed strategies to achieve objective.			
Measures	Indicators	Responsibility	Schedule/Due Date
<b>Training Performance</b> The C-A staff will complete 95% of the required training courses by September 30, 2000.	% of required training completed.	Training & Procedures Manager	Quarterly
<b>Results:</b> The percent of training requirements completed increased to 95% complete. Additionally, the Department has successfully worked to accommodate the training needs of the new AGS/RHIC Users Center. Currently, the Department has undertaken a review of Job Training Assessments for all C-A employees to ensure appropriate training is assigned.  <u>Action Items:</u> None			
Assessment of Environmental compliance completed in accordance with the "Environmental Assessments" Subject Area. 1. Assessment(s) Completed by April 00 2. Corrective and preventive action implemented as necessary by May 2000		EMS Representative	April 2000

<p>Results:</p> <p>The C-A Environmental Compliance Representative (ECR) verified that C-A complied with applicable regulatory requirements in April 2000. Required corrective actions were implemented before the C-A internal EMS Assessment.</p> <p>The C-A Environmental Compliance Representative (ECR) will perform annual reviews of C-A's compliance with regulatory requirements.</p> <p>a. NESHAPs requirement 40 CFR 61, Subpart H:</p> <ul style="list-style-type: none"> <li>• Rad air sampling in the LINAC tunnel</li> <li>• At least one sample of target cave air (during operations with beam) in each cave which sees beam during the calendar year</li> <li>• Water samples from cooling tower #2 submitted for radiological analysis, and a radiological survey of the tower water inlet-pipe during operation of C-line.</li> </ul> <p>b. SBMS Storage and Transfer of Hazardous Materials subject area</p> <ul style="list-style-type: none"> <li>• All underground storage tanks which have cathodic protection systems must be tested annually.</li> <li>• Annual integrity tests must be performed and documented for all double-walled piping systems.</li> </ul> <p>C-A QA will perform an annual process evaluation assessment to ensure ECR has performed required reviews. This task will be tracked in the C-A ATS.</p> <p><u>Action Items:</u></p> <p>None.</p>			
<p>Radiological Control Excellence:</p> <p>C-A Collective Dose Goal for FY 00 is 21.5 person-rem. This assumes five (5) months of equivalent FEB proton running, five (5) program months of RHIC, AtR, and NASA, and 2.6 months of maintenance.</p>		Associate Chair for ESHQ	Quarterly (Performance Indicator)
<p>Results:</p> <p>Collective dose continues to trend downward, and the Department is within its collective-dose goal for CY00. Although the mix of physics programs has changed, there was a decrease in dose per particle accelerated.</p> <p>The C-A Collective Dose for FY2000 is approximately 11.0 person-rem. Facility Support Representative supplied an estimated collective dose because the exposure for September 2000 was not available.</p> <p>Action Items:</p> <p>None.</p>			
<p>Environment, Safety, and Health Excellence</p> <p>Occupational Safety and Health</p> <p>Total Recordable Case Rate (RCR), FY 00 Goal = 1.8</p> <p>Lost Workday Case Rate(LWCR) FY 00 Goal = 1.31</p> <p>Days Away from Work Rate (DAWR) FY 00 Goal = 26.88</p>		Associate Chair for ESHQ	Quarterly (Performance Indicator)

<p>Results: C-A Department efforts to reduce lost workday and recordable injury rates were successful. The lost-work case-rate and the injury rate continued downward at a rate of three-fold reduction every 10 years. The C-A lost-work day and recordable injury rates are currently below the DOE and BNL averages.</p> <p>Total Recordable Case Rate (RCR), FY 00 = 2.04 Lost Workday Case Rate(LWCR) FY 00 = 1.23 Days Away from Work Rate (DAWR) FY 00 = 29.48</p> <p>Action Items: None.</p>															
Critical Outcome 3: ES&H Excellence 3.1.1.1 Closeout issues related to Underground Injection Control Devices - Monitor BNL Plant Engineering process on closing C-A UIC's. Comply with requirements of the Underground Injection Control subject area.		Environmental Protection Group within the C-A ES&H/Q Division	October 2000												
<p>Results: The laboratory UIC program was developed from the Release points and Facility Review Disposition Projects. Plant Engineering has the lead to complete this project with some help from subject matter experts at C-A. As of October 26, 2000, the project leader has indicated that this project is 90% completed lab wide. The main part of this project, the sanitary system upgrade to replace many of the dry wells will be completed in the spring of 2001. Some items will be covered by ground sampling, e.g. cesspool under AGS ring, and monitored by BNL Plant Engineering.</p> <p><u>Action Items:</u> None</p>															
Environmental Excellence Reduce wastes and conserve resources consistent with contractual and secretarial goals. <table><tr><td><u>Goal</u></td><td><u>Waste Type</u></td></tr><tr><td>412 ft<sup>3</sup>.</td><td>Hazardous Waste</td></tr><tr><td>6143 ft<sup>3</sup>.</td><td>Radioactive Waste</td></tr><tr><td>48 ft<sup>3</sup>.</td><td>Mixed Waste</td></tr></table>	<u>Goal</u>	<u>Waste Type</u>	412 ft <sup>3</sup> .	Hazardous Waste	6143 ft <sup>3</sup> .	Radioactive Waste	48 ft <sup>3</sup> .	Mixed Waste		Associate Chair for ESHQ	Quarterly (Performance Indicator)				
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<p>Results: The C-A department generated the following amounts of waste from October 1, 1999 through September 30, 2000.</p> <table><tr><td><u>Waste Type`</u></td><td><u>Actual</u></td><td><u>Goal</u></td></tr><tr><td>Hazardous Waste</td><td>105.6 ft<sup>3</sup>.</td><td>412 ft<sup>3</sup>.</td></tr><tr><td>Radioactive Waste</td><td>2070 ft<sup>3</sup>.</td><td>6143 ft<sup>3</sup>.</td></tr><tr><td>Mixed Waste</td><td>40.3 ft<sup>3</sup>.</td><td>48 ft<sup>3</sup>.</td></tr></table> <p><u>Action Items:</u> None.</p>				<u>Waste Type`</u>	<u>Actual</u>	<u>Goal</u>	Hazardous Waste	105.6 ft <sup>3</sup> .	412 ft <sup>3</sup> .	Radioactive Waste	2070 ft <sup>3</sup> .	6143 ft <sup>3</sup> .	Mixed Waste	40.3 ft <sup>3</sup> .	48 ft <sup>3</sup> .
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Report percent of scheduled assessments completed.	% of required assessments completed.	QA	Quarterly
<p><u>Results:</u>  The Collider-Accelerator Department's Quality Office has developed and maintained a robust assessment program that has provided essential information to C-A Management regarding the Department's operational and environmental activities. This information has been used to improve existing activities regarding performance against documented Departmental and BNL requirements. In FY 00, the C-A QA Group was scheduled to perform twenty-three assessments. Of these, sixteen were completed (70%). It should be noted that in addition to the sixteen scheduled assessments completed, an additional five unscheduled assessments were performed, e.g.</p> <ul style="list-style-type: none"> <li>(a) Removal of Superseded Laboratory Manual</li> <li>(b) Review of Conduct of Operations Matrix</li> <li>(c) ISM Verification.</li> <li>(d) TLD's Located at Collider</li> <li>(e) FY 2000 Work Permits and ESRC Checkoff Lists</li> </ul> <p><u>Action Items:</u>  Continue to employ the BNL Quality Program and Services Office to provide assistance in performing scheduled C-A assessments.</p>			